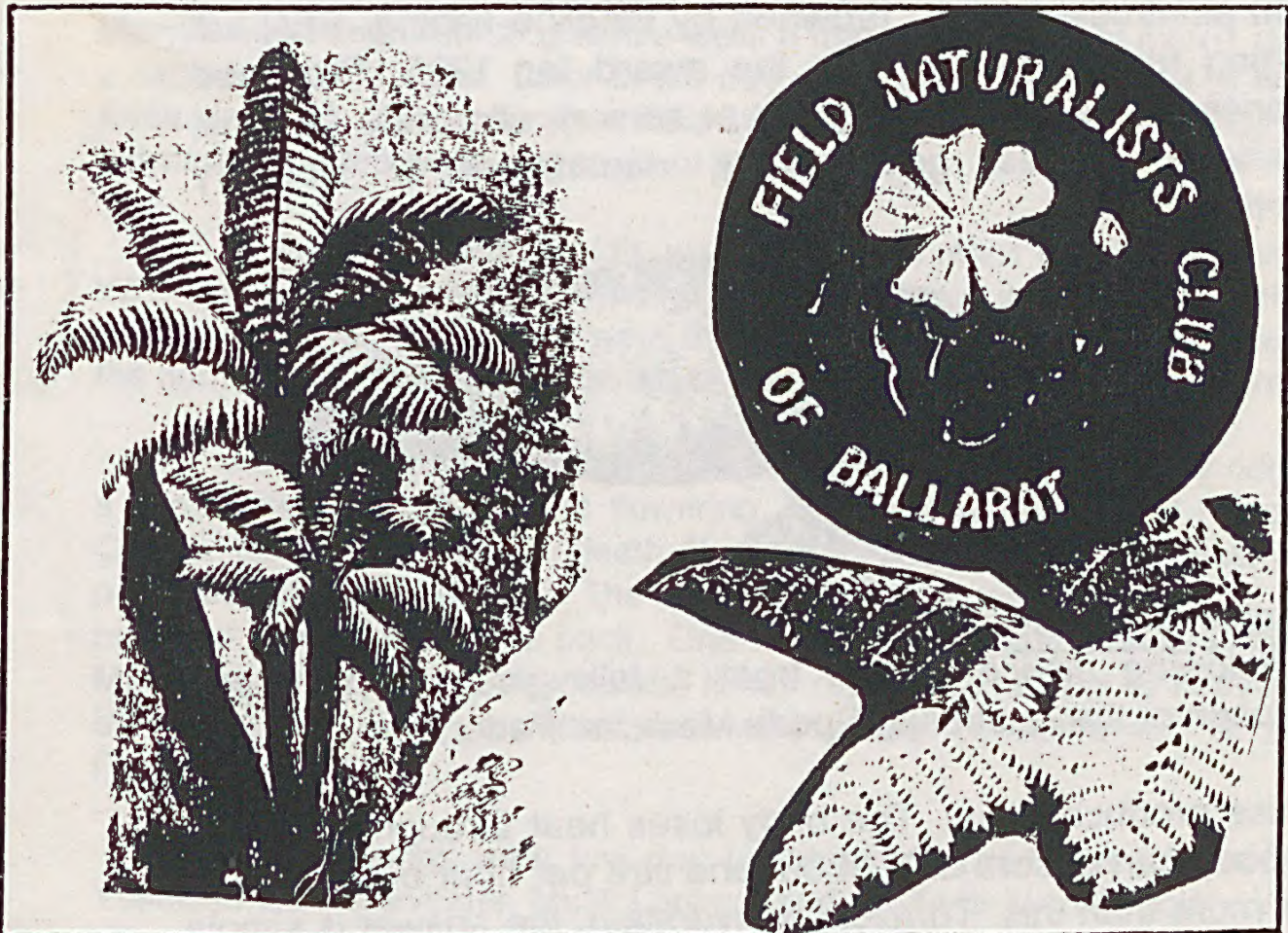


*Field Naturalists
Club of Ballarat*
Incorporated

DECEMBER 1994

EXCURSION - NEWS SHEET

- Meeting Dec 2 Mosses, ferns and liverworts - Mr J Jelbart
- Meeting Feb 3 (1995) Mooramong Grassland Project - Mr N Scarlett
- Excursion Dec 4 Mount Cole Family Excursion and Picnic Tea
- Excursion Feb 5 (1995) Dereel area small blocks - Mrs P Murphy



President: Mr J Gregurke Ph:
Secretary: Mrs M Rotheram
Treasurer: Mr G Bluns
Editor: Mr A Dyson

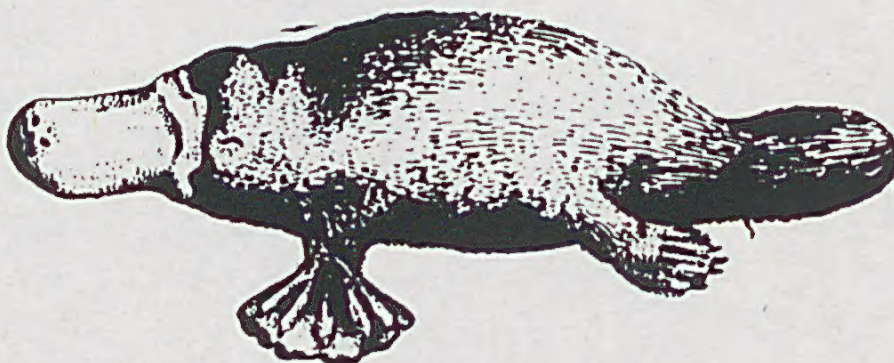
Meetings as specified are held
at the School of Mines and
Industries, Lydiard Street Sth,
Art Building, commencing at 7.30
p.m. EXCURSIONS, AS SPECIFIED,
COMMENCE FROM BOOK CITY, cnr
STURT AND ARMSTRONG STS, BALLARAT
at 9.30 a.m. for FULL DAY OUTING!
OR at 1.30 p.m. for HALF DAY.

Diary Date

Wednesday 25 January 1995 at 7.30pm - Committee Meeting at Lindsay Fink's, Meredith.

Dulcie Brooke was thrilled to learn that an environment award is being set up to honour the memory of her husband **Max Brooke**, who died earlier this year. The Green Ballarat Newsletter notes that an award to a Ballarat Green Citizen has been proposed by the ACF to be awarded annually on World Environment Day. A sub-committee has been formed by the Ballarat Environment Network (BEN) to organise the award. The Max Brooke Green Citizen Award will honour Max as a long term ACF member. He also spent considerable time and effort in devising methods to prevent albatrosses being drowned by longline fishing. BEN will be calling for nominations for the award for 1995. Proposed categories will be individual (junior or senior), corporate (groups, companies, councils, government), department or statutory authorities.

MR



Walking in the Heat

The following advice comes from a talk given by Dr Geoff Thompson of the Australian Sports Medicine Federation.

Exercise produces heat. The body loses heat through sweating. Your body can absorb only about one litre per hour but is able to sweat more than this. To avoid dehydration, the answer is simple - drink early and often. Drink water - drinking anything other than water (or perhaps weak tea) can be worse than nothing in hot weather. The addition of salts or sugars to drinks delays the absorption of water from the stomach. Snacking will cause a concentrated sugar solution in your stomach and you will get a bit dehydrated. If you must snack then the best ones are fresh fruit, sandwiches, rolls, unsweetened muesli bars and dried fruit.

Paddy's Ranges Excursion

Sunday 6th November, 1994

Cold south-westerly wind and showers in Ballarat, north of the great dividing range there was no rain but the strong winds blew all day. Members of the Maryborough Field Naturalists' Club met us at the Goldfields Reservoirs. Coots were numerous on the reservoir and Dusky Moorhen and Swampen were sheltering among the reeds. Little Pied and Little Black Cormorant were perched in the trees and four Black Duck swam among the Coots. Reed Warblers were calling and White-plumed Honeyeaters flew around the River Red Gums. Keen eyes spotted a fragile honeyeater nest on some horizontal twigs of the trees.

In the bushland south-east of Maryborough we examined Aboriginal wells at Bull Gully. The four openings were brim full despite the dry winter and spring. Plans in Maryborough Field Naturalists Club book "Exploring Maryborough and District" give the wells a maximum depth of over 1 metre and a capacity of 168 litres. Later in the day were visited another set of wells near Adelaide Lead. The wells were used by the aborigines when travelling between permanent waters north and south of Maryborough.

In the forest near Craigie we were shown relics of the gold mining era. When gold mining ended the boiler and tanks were used as a Eucalyptus oil distillery. Hidden in the bush were the ruins of a stone-walled house which was the home of the family who first discovered gold in the Maryborough area.

After lunch in the Paddy's Ranges we walked along a rocky ridge where a good variety of plants were flowering. There were masses of Fringe Myrtle *Calytrix tetragona*, Daphne Heath *Brachyloma daphnoides* and Bushy Parrot-pea *Dillwynia ramosissima*. The fires of 1985 had severely burnt all the area but most plants have come back. One which is less common now is the Rough Mint-bush *Prostanthera denticulata*; it has regenerated but is heavily grazed by kangaroos. Two grevilleas were widespread: *G. alpina* and *G. dimorpha* Flame Grevillea.

Bird sightings were few due to the windy conditions. Some included Yellow-tufted Honeyeater, Musk Lorikeet and White-browed Babbler. We heard other honeyeaters, Yellow Robin, Grey Thrush and Crested Bellbird. JG

BRACHINA GORGE

The rocks which form the Flinders Ranges were deposited as sand and mud in a depression in the ocean floor, itself caused by a stretching of the earth's crust, during a period 1100 million to 470 million years ago. This period overlapped, at it's most recent end, the deposition of our local Ordovician sandstones. It has been estimated that these South Australian sediments were up to 24km.thick. The rocks vary in hardness depending on the source of the particles of sand and silt, on the pressure experienced, on the heating of the rocks and upon chemical changes.

Movements in the earth's crust (ca. 500mya) caused an upthrusting of the sediments to form mountain chains with an approximate North-South trend. Weathering has produced the landscape we see today. The general north-south line of mountains was buckled into loops in a number of places, the best known example is Wilpena Pound.

The Flinders Ranges are transected, roughly East-West, in a number of places largely as a consequence of stream action. An example, probably the most dramatic, is the Brachina Gorge.

Travelling through the gorge and along the Brachina Creek is to ride through a gigantic cross section of the Flinders Ranges and back through time from the present to over 1 billion years ago. Fortunately the South Australian National Parks & Wildlife Service, The Department of Mines & Energy and other bodies have co-operated to produce a self-guided tour of the geology of the Brachina Gorge. We were told that the marked route will be completed this year. Literature is available at the Park Ranger's Office at Wilpena.

With the available help we were able to appreciate the geology which underlies the beauty and fascination of this area, and to find fossil sites. We saw fossil stromatolites in the pre-Cambrian rocks along the Enorama Creek, a tributary of the Brachina Creek.

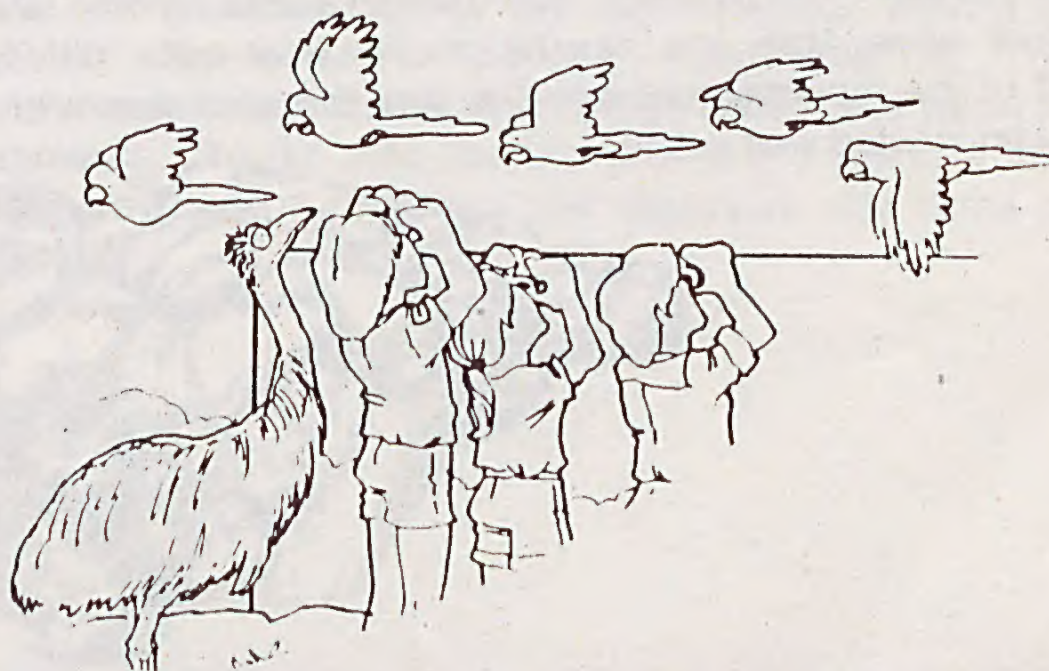
Then examples of Archaeocyatha, a group of sponge-like creatures of Cambrian time. Archaeocyatha grew in dense colonies so that rocks bearing these fossils are spectacular with sections of the creatures at various angles. We found a small piece of rock with a vertical section showing, nicely, the cup shaped structure. Fossils of more recent times and of more robust structure, brachiopods, were readily found.

However, try as we might, we did not find examples of the most ancient complex creatures that have survived as fossils-the Ediacaran fauna. But this gives us a reason to return.

The gorge presents actual living organisms in a range of plants, birds from native hens and black fronted plovers around the creek to kestrels and wedge-tailed eagles above. The rocky terrain was ideal for a variety of lizards and euros were seen on a number of occasions.

If you should visit Brachina Gorge your day may be spoilt (or enhanced) by a big-horned, bearded, black-faced billy goat peering down from the ramparts like a mediaeval diabolical gargoyle!

D. & K. McD.



Victoria's Polar Dinosaurs

Stella Bedggood Memorial Lecture given by Dr Tom Rich

Dr Rich spoke at the Memorial Lecture on 4 November. Dr Rich is curator of vertebrate palaeontology at the Museum of Victoria. His wife, Dr Patricia Vickers-Rich is director of the Monash Science Centre.

Dr Rich has been involved with a joint program (Monash University and the Museum of Victoria), searching for knowledge of prehistoric life at several localities along the Victorian coast. Coastal areas were chosen because bare rock is frequently exposed after wave action, and this sedimentary rock formed by the accumulation of sand and clay particles has the potential to have buried within it bones, shells, leaves and dinosaur bones preserved as fossils.

During the Cretaceous Period (from 140 to 66 million years ago) the split up of supercontinents gathered pace. Australia remained attached to Antarctica, though a system of rift valleys was developing in preparation for separation. When dinosaurs lived in Australia the land was well inside the Antarctic Circle - some estimates suggest the land mass lay between 50 and 85 degrees south. The climate during most of this period was very warm and humid (with cold spells at the beginning and end of the period).

The fossil record of animal life in the Cretaceous period in Australia is rich and diverse. It includes dinosaurs of many types and sizes such as the flying reptiles (*Pterosaurs*) and the sea reptiles (turtles, *Ichthyosaurs* and *Plesiosaurs*). When these dinosaurs were alive the coastal scene was quite different. Instead of low mountains next to the sea, the area was a broad flood plain located well inland.



After much preliminary searching Dr Rich and his team selected, in 1984, an area on the Otway Basin (which they named Dinosaur Cove) for excavation. At least 3000 hours of voluntary effort has gone into the work at Dinosaur Cove. In the 16 days of the first excavation 85 fossil bone fragments were recovered including several belonging to dinosaurs. In this area lived a variety of small two legged herbivorous ornithopod dinosaurs belonging to the families *Hypsilophodontidae* and *Camptosauridae*. Up to six species seem to have been present - the smallest specimens were only about 30 cm high and the largest were about the size of an ostrich. Although they are known only from isolated limb bones, vertebrae, skull fragments and teeth, palaeontologists are reasonably confident about what the whole animals looked like. This is because the Victorian fossils are remarkably similar to distinctive bones and teeth in complete skeletons found in Europe and North America.

One of the species - *Leaellynasaura* was named after one of Dr Riches' children. The brains of these dinosaurs show adaptation to the polar environment with enlarged eye sockets as well as enlargements in that part of the brain concerned with vision - for seeing better in the dark in the high latitudes in which they lived.

Dr Rich and his colleagues are enthusiastic about the potential of the Strezlecki Range area. Late surviving groups have been identified along the coastal areas here - *Labyrinthodont* amphibians (crocodile like), carnivorous dinosaurs similar to the large, bipedal *Allosaurus*, a relative of the *Tyrannosaurus*.

Dr Rich also spoke of work done by palaeontologists in other parts of Australia and overseas and of his own particular interest in Alaska. Our thanks to him for his most informative talk. The audience appreciated seeing many excellent slides and (replica) bone fragments. Thanks also for his providing copies of the article written by he and his wife, "The dinosaurs who came in from the cold".

VD



The Eastern Grey Kangaroo *Macropus giganteus*
Order Diptotodonta, Super-Family Macropodoidea,
Family Macropodidae.

Grey Kangaroos have a wide and almost continuous distribution between the inland plains and the coast where the annual rainfall is more than 250 mm, it's habitats range from semi arid scrub to woodlands and forests. It was one of the first of the large macropods seen by Cook at what is now Cooktown in Queensland, it is also the biggest of the Macropodidae.

The Eastern Grey is predominantly a grazing animal with specific food preferences, restricted to grasses and herbs, it's favoured food is grass, and on this diet, it has a lower nitrogen requirement and intake of dry matter than sheep of equivalent weight.

Grey Kangaroos usually rest in shade or shelter trees during the day coming out in late afternoon and early morning to graze and aggregate in open country.

Communication between mother and young and between males and oestrous females involves a series of clucking sounds, alarm signals are a guttural cough.

Gestation is 36 days the incumbent young leaving the pouch at the age of about 11 months beginning at about 9 months to leave the pouch for short periods, but continues to suckle using the same teat.

Vast mobs are seen in the plains of N.S.W. estimated to be up to 1,500,000, or more. Aborigines have hunted Kangaroos for many thousands of years without having much effect on them. Early Europeans valued them for their meat and skins.

There are two sub species, one in Tasmania where they are not plentiful, their status on the mainland is abundant, they are plentiful around the Ballarat area.

Elfin